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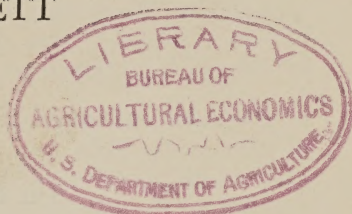
The Land We Defend

by

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An address given before the 78th Annual Meeting of the National Education Association, Milwaukee, Wisconsin, July 2, 1940, in connection with the subject "Developing Enlightened Public Opinion in Conservation."

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

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Washington, D. C.

The Land We Defend

THAT we are here this morning to discuss conservation of human and natural resources at a regular annual meeting of the National Education Association is certainly a highly encouraging step in the direction of "Developing enlightened opinion in conservation." A few years ago, a discussion like this would never have been scheduled. Until recently, people did not show very much interest in subjects like conservation of soil and human resources. I recall that when the results of a soil survey of Fairfield County, S. C., were published in 1911, some of us thought that public announcement of the vast soil losses described in the report—136,000 acres of once good farm land ruined by erosion—would arouse a lot of interest in South Carolina. Actually, it aroused little or no interest either in the State or in the county, even though the report had wide distribution.

I am reminded also that in another part of the Piedmont region, in Albemarle County, Va., where Thomas Jefferson wrote so hopefully of "horizontal plowing" to prevent the rich soil from flowing off his farm into the streams, very few people took up the practice. If contour cultivation was ever a common agricultural practice in that section, little evidence of it can be seen today, even on the land that Jefferson owned—much of which has suffered greatly from erosion.

Our Soil Losses Now Recognized

Just why this subject of soil losses by erosion has never entered very effectively into our school curricula, or into the general thinking of a nation possessing the intelligence and inventive genius of the citizens of the United States, is hard to understand. We have been producing scientists of high standing in nearly every scientific field since the beginning of our national life. We have many old and renowned universities, scientific societies, and institutions carrying on research. With all these able scientists and scientific institutions, it is difficult to explain why so few people became interested, until recently, in the subject of soil erosion. I have never been able to understand why, with rivers running red or yellow with every heavy rain, according to the color of the land within their watersheds, and with new tributaries in the form of gullies being cut across thousands of fields, so few people thought to relate these obvious facts of land attrition to a rapidly increasing menace to American agriculture.

I suppose the very richness of the land of virgin America was a contributing factor toward this general lack of concern about the permanency of the soil. People probably thought the soil resource was limitless and inexhaustible. However, we know now this early conception was an illusion.

Soil the Mother of All

Meanwhile, nothing is to be gained by placing the blame for failure to recognize the devastating effects of erosion or for waiting a hundred years to start a real program of research, education, and conservation work on the land.

Dr. Judd has explained in an able, understandable way the significance and need for human conservation.¹ I shall not go into that phase of the subject, except to say that those of us who are active in the field of soil conservation recognize the soil as the mother of all—the source of our food and fiber—and, accordingly, feel that every lick of effective work done to conserve the soil is at the same time an effort in the direction of conservation of the human resource. We do not at any time conceive our activities as being directed toward the objective of saving soil merely for the sake of the soil—that very unattractive stuff which mud-dies our feet when it is wet and chokes our lungs when drifting as dust. We do, however, recognize this common material as being so vitally important to the ends of human welfare that people not only cannot be conserved without it, but our country cannot be an enduring Nation without it.

We have learned that civilizations have disappeared from some regions as the productive agricultural land was wasted away by erosion. Archeologists have found it necessary to dig through many feet of erosional debris in order to reach the tops of the ruins of towns, cities, and temples built by ancient civilizations, now effaced from the earth. At Khorsabad, in Iraq, for example, it was necessary to dig through many feet of wind-blown soil material in order to get down to the tops of the ancient structures of that city buried for more than 2 thousand years. This kind of information, it seems to me, could have been used with powerful effect as material for enlightening the people in other parts of the world on the human dangers inherent in the wastage of productive soil.

A Damaged Domain

I am disturbed that so few people of the United States, even today, realize what soil erosion has cost and is costing our Nation, or how

¹Judd, Charles H. *What is happening to our human and natural resources. Before Assembly on Use of Human and Natural Resources in Education, Seventy-eighth Annual Meeting, National Education Association, July 2, 1940, Milwaukee, Wis.*

rapidly the losses are taking place. The figures are so big they are difficult to handle. It is difficult to develop a mental yardstick for a proper perspective of these prodigious losses. Our reconnaissance and detailed erosion surveys of the country show, for example, that 282 million acres of crop and grazing land have been essentially ruined for any further immediate practical use; and that about 100 million acres of this severely damaged area once constituted good cropland—as good as we had. Think of the size of this depleted area: It exceeds the combined extent of New York, Pennsylvania, New Jersey, Maryland, Delaware, and all of the New England States except Maine. It is about the size of England, France, and Germany combined—that is, the Germany of a few months ago.

The 3 billion tons of soil annually washed out of the croplands and associated pastures of America represent an amount almost too big for comprehension. Perhaps it would mean more to say that we are losing from our farm area enough soil every year to fill a train of freight cars that would encircle the earth 18 times at the equator.

To me, this tragedy of land impoverishment and wastage comes home sharply when I stop to think that most of it has taken place within a hundred years—or since my own father was born, in 1833. It doesn't seem possible that more than 200 million acres of land have been essentially destroyed during the lives of two people, my father and myself; and that the process is under way on an additional area of 775 million acres of farm, grazing, and forest land. Generally, the ruined land has been so damaged that we are not trying to reclaim it; that task is being turned over to nature. Nature builds soil back very slowly, taking generations, sometimes centuries, to replace a single inch of topsoil.

\$840,000,000—A Yearly Loss

How many people know that the cost of erosion in the United States amounts to about 840 million dollars a year? How many know that the cost of erosion, in terms of highway maintenance alone, amounts to about 180 million dollars annually?

This 840-million-dollar estimate of direct and indirect erosion cost does not cover the whole field of damage. It doesn't take into consideration damage to fish life in streams, or damage to the oyster industry by pollution of waters over the beds, with material that once consisted of productive soil somewhere upstream. Neither does it take into consideration the amount of potential plant food wasted by the process of soil erosion—and incidentally, we should remember that erosion removes not only the available plant food but the unreleased potential plant-food material as well; it takes the organic matter and the microscopic organisms that help to convert raw soil minerals into active plant nutrients; it takes the whole body of the soil, carrying away everything at once.

What becomes of the soil stripped from improperly cultivated fields and overgrazed ranges is still another part of the insidious process of erosion. The products of water erosion are scattered all the way from the point where the material is picked up, to the final resting place in the oceans. Thousands of acres of rich bottomland have been covered by sand or subsoil material washed out of the hills. Stream channels and harbors have been clogged with sediment, and some 2,000 reservoirs have been filled to the tops of the dams—with silt. Surveys indicate that of the 8,000 major reservoirs scattered throughout the country and not yet filled, 38 percent will be filled in less than 50 years if the present rate of silting continues. Twenty-five percent more will be filled within 50 or 100 years.

Dust Across the Land

It seems to take something like a disaster to awaken people who have been accustomed to great national prosperity, such as ours, to the presence of a national menace. Although we were slowly coming to realize that soil erosion was a major national problem, even before the great dust storm of May 12, 1934, it took that storm to awaken the Nation as a whole to some realization of the menace of erosion.

This particular dust storm blotted out the sun over the Nation's capital, drove grit between the teeth of New Yorkers, and scattered dust on the decks of ships 200 miles at sea. I suspect that when people along the seaboard of the eastern United States began to taste fresh soil from the plains 2 thousand miles away, many of them realized for the first time that somewhere something had gone wrong with the land. Newspapers duly informed them of the cause of dust storms—how the former grass-covered lands of the plains, laid bare by the plow, were suffering from the wrath of the wind in times of drought. They were told how that single storm blew 300 million tons of rich soil material out of the plains country and scattered it willy-nilly in a thin layer that did no one any good. Further, they were told that the light fine particles, which contain the principal elements of soil fertility, were the ones that were blown far away, and that the coarse, heavy, less productive particles were left behind on the farms of the Great Plains to create troublesome dunes and to cover roadways, farm buildings, productive fields, and pastures.

The May 1934 dust storm was followed by similar storms during the drought years of the 1930's. Time and again, such storms blew across to the Atlantic, across into Canada, or southward to the Gulf of Mexico. We have had dust storms within the year. I was in one that extended more than 500 miles east of its point of origin in the "Dust Bowl." I am afraid we are getting a little too used to dust storms. Too many people may have lost concern about this new American phenomenon, which is a symbol of the type of land use that no nation can afford to countenance.

Dust storms have become common along the borders of the Sahara Desert. The "harmattan," for example, is a dust-laden wind that every year blows out of the southwestern Sahara, and siroccos frequently sweep out of North Africa, across the Mediterranean, to Europe. Probably these were not always a characteristic of the region of the great Sahara.

Did the May dust storm of 1934 mean so little to us that we can so soon forget that it was the first one since white man settled North America that blew from the heart of the Nation across to the Atlantic seaboard?

Somehow these things I have been speaking of must be brought in a purposeful way to the attention of all Americans. It seems to me it is high time to introduce into our schools, courses which deal with the soil as a resource basic to continuing national welfare—as a resource that must be preserved. About the most some of the older of us can expect to do is get a good program of conservation well started. The job is a big one; it is going to take a long time to safeguard millions of acres now affected by erosion and other millions of acres that will be affected when brought into use.

Topsoil and Subsoil

Our children should know that when our country was young, the average depth of topsoil was about 9 inches, and now it is only about 5 inches—nearly half gone. They should know that when this thin layer has been permitted to wash off, subsoil is exposed, and that subsoil generally is much less productive than topsoil.

Some measurements have shown that topsoil is from 2 to nearly 100 times more productive than subsoil. Moreover, the spongelike topsoil is more absorptive of rainfall and less erodible than subsoil. Subsoil cuts away faster under the lash of rain, and gullies—new tributaries to the natural drainageways of the country—develop very rapidly at that stage of land depreciation marked by the removal of topsoil. These new waterways rush rainfall into streams to increase the height of floods, and they pour unproductive subsoil material out over rich valley lands, into stream channels, and ultimately into reservoirs.

New Ways of Farming

Here, we might consider for a moment a matter referred to by Dr. Judd in his talk a few minutes ago—that is, the difficulty we have with traditional ways of doing things. To illustrate: It has long been known that water flows down a fixed conduit faster as the volume increases in the channel; and also, that the faster water runs over the surface of the earth, the greater its capacity for picking up particles of soil to carry downhill. These are physical laws. They cannot be repealed or amended. But man can cooperate with such natural laws; he can make

adjustments between his way of doing things and nature's way of doing things.

Now, to go ahead with the illustration: Most American farmers run their crop rows in straight lines regardless of slope. In doing this, it so happens that most of them are directed up and down the slope, so that the furrows between rows of cotton, corn, potatoes, tobacco, or any other clean-tilled crop, serve as channelways for collecting rainfall and rushing it with maximum speed downhill, thus carrying away, in accordance with natural laws, the largest possible volume of soil. This practice predominates over the greater part of the United States. It probably originated with the division of public lands into sections—square miles with straight sides. Farmers began to plow parallel to the boundaries of these straight-sided sections, quarter sections, or half sections, and so got into the habit of thinking that straight rows are a part of good farming. So fixed has the habit become that it frequently takes technical assistance to get the farmers' operations properly realigned on the contour.

Yesterday I drove some 50 miles in a northerly direction from Milwaukee, through a section where a great deal of farming is done. The only contour cultivation I saw was on some of the Soil Conservation Service demonstration farms near Hartford. Incidentally, this is a section of the country where it was not supposed there was much erosion. Yet we saw erosion, as the result of the recent June rains, in every single cultivated field that we passed. On one farm, where the corn rows ran straight down the hill, the two rains of June 17 and 22, 1940, cut out furrows $7\frac{1}{2}$ inches deep and 18 inches wide—and greater—between the rows. From this field these two rains washed out, according to measurement, approximately 135 tons of soil per acre.

The Basis of Erosion Control

When we were asked in the fall of 1933 to see what could be done to control erosion, and 5 million dollars from funds authorized under the National Industrial Recovery Act were allotted to the newly organized Soil Erosion Service, those of us who were put in charge of the organization decided that the best way to start a Nation-wide fight on erosion would be to operate through demonstrations in various representative parts of the country where the problem was known to be serious. Some of us, who had been studying, classifying, and mapping soils throughout the United States for many years, had the definite belief that we would never get anywhere with permanent control of erosion unless the different kinds of land that make up the farms and ranches of the country could be treated in accordance with their individual needs and adaptabilities. In order to do this, it was recognized at once that it would be necessary to study every farm and every ranch and actually to map every

important, distinct body of soil, as well as the degree of slope occupied by these different kinds of soil, and the amount of soil that had been removed by cropping, overgrazing, or burning during past use of the land. Having acquired this basic physical information, the detailed farm plans for conserving soil on a given farm were worked out in the field—not around a table in a room wholly detached from the land. Our specialists in soil conservation go with the farmer out on the ground, from field to field, from wood lot to pasture, and thereby develop a practical, coordinated plan for applying the best known methods of rainfall conservation and erosion control to his different kinds of land.

Working With the Farmer

Out on the ground it is comparatively simple to explain to a farmer why, for example, a fence that runs up and down the slope should be relocated across the slope so that the land can be plowed with the contour and so that rotations can be adjusted to the slope, terraces built, and strip cropping installed. In this way whole farms have been treated—a complete farm conservation job done. Control measures are used so that one supports another, fields and farms are handled so that what is done in one field or on one farm benefits an adjacent field or farm, and even remote farms somewhere downstream.

This method of coordinated, complete farm treatment has proved the correct way to control and prevent erosion, to conserve rainfall, and to utilize the land properly. It is simply a plain physical fact that erosion cannot be controlled in any other way. In other words, what I am saying is purely a statement of a physical law, not the expression of my personal opinion.

From the very beginning of the program it was recognized that the economic situation on some farms would enforce some flexibility in such a plan of operation. In some instances, for example, a farm was too small to permit a completely coordinated land-use treatment, and so it needed to be enlarged by lease, purchase, or otherwise.

It was also recognized that limitations in the use of land were imposed by climatic conditions—such as the intensity of rainfall and susceptibility to drought—which, after all, are essentially a physical part of the land.

Seven Years of Experience

Since we are using taxpayers' money in carrying on this work, I am happy to say that, in spite of the fact that mistakes have been made, the work has proved generally successful and very popular from its inception. Even where mistakes were made, our procedure has been to study the cause of the failure of a given method or practice, and to disseminate any useful information gained from such investigations to all the other

conservationists working in all other parts of the United States. As a result, the same mistakes are not repeated, and data on new and better ways of handling particular erosion problems are made known immediately to all soil conservationists, for whatever use they can make of the information. In this way, some failures have actually turned out to be profitable investments because they led to new and valuable information.

Of course, we have made use of all the applicable information that we could get our hands on, such as the best crop rotation for a particular locality, or a given type of land; the best kind of grass to grow, the best way to seed grass; and so on. Since the country was 75 to 100 years late in getting a program of this kind started, and since the national research program in erosion and water conservation was only getting well under way, there was a scarcity of available information for immediate use on many kinds of land. Accordingly, it was necessary to carry on considerable work that was more or less based on the "trial and error" method. Fortunately, by following the coordinated plan referred to, this method turned out to be much more successful, generally, than might have been expected.

600 Farms Give an Example

In this way, millions of acres making up many thousands of farms throughout the country already have been safeguarded. Let me give an example that I like to refer to, because it is not only illustrative of the results of the soil and water conservation demonstration work, but represents the type of cooperation that I wish we had in every walk of life throughout the entire country. There is a demonstration project on the watershed of Elm Creek, near Temple, Tex., where some 600 farms have been treated for erosion control. Elm Creek is in the famous "Black Belt" of central Texas, an area which for a long time was one of the leading cotton producers in the world. The farmers were one-crop minded; most of them grew cotton up to their doorsteps. Many of them didn't even have a garden, a hog, or a chicken. They were strictly cotton farmers. Erosion was becoming exceedingly troublesome; many fields had been practically ruined by the stripping off of 5, 8, 10, 15, or 20 inches of soil and subsoil as the result of cultivating erodible land without protection from rainwash.

Some 15 soil and water conservation measures were applied to these lands—measures such as terracing, contour cultivation, strip cropping, the construction of vegetated waterways to carry excess water safely down the slope, gully control, pasture improvement, etc. Even the common native grass of this original prairie region—"little bluestem"—was brought extensively into use on these farms. Most of it had been plowed up, and this was the first time this native grass was ever cultured in an important way, so far as I know.

Cooperation Produces Results

In one portion of Elm Creek watershed, 174 adjoining farms, comprising something over 34,000 acres of land, were treated in a solid block for soil and water conservation. Erosion practices were installed for every acre of every field and pasture; every gully was stabilized, even those along roadsides; land too steep for cultivation was planted to a protective cover of grass or plants valuable to wildlife. The boundaries of three counties cut into this area, but the farmers, realizing that rainfall and erosion pay no attention to farm boundaries, county boundaries, or any other nonphysical boundary set up by man, cooperated with one another and with the erosion-control specialists and local agencies in such an effective manner that erosion-control measures went right across farm boundaries and county boundaries—as they should go in any sensible pattern of erosion control, whether in the Black Belt of Texas or on any other kind of land in any other part of the Nation.

Erosion was controlled effectively. Even the floods that formerly ran down some of the smaller streams were greatly reduced. Yields of cotton and corn were increased, and the money income from farms was lifted to a considerable degree, as compared with surrounding farms including the same kind of land, but not treated for conservation.

The farmers seem to be well pleased with what has been accomplished. Many of them now believe they can stay where they are and make a living under almost any circumstances.

Considering the accomplishments, the fine spirit of cooperation, the renewed hope of the farmers, and the increased yields and money income, it seems to me this is one of the most significant pieces of work that has ever been achieved by civilized man. The same thing has been done in many other parts of the country, but this happens to be the place where the largest number of adjoining farmers have cooperated so fully in such a program.

Farmers Form Soil Conservation Districts

Nevertheless, despite such examples of fine cooperation in some areas, I am obliged to say that erosion is still removing more soil than the cooperating farmers of the country, operating through all agencies, have been able to tie down with control measures. Probably something like 500,000 acres of cropland are still being ruined by erosion every year in the United States. I can say, however, that the gap between the spread of erosion and the progress of erosion control is being narrowed. Some time ago, responsible officials of the Soil Conservation Service and the Department of Agriculture, in Washington, concluded that the objectives of the erosion-control demonstrations were being rapidly achieved. It was being shown, through these demonstrations, that *nearly every*

kind of erosion encountered could be either remedied or effectively controlled. But there was a need to speed up control activities. Out of this need came the State soil conservation districts laws. In less than 4 years, 38 States have enacted laws permitting farmers to organize soil-conservation districts and carry on district business under thoroughly democratic methods of procedure. Three hundred and fourteen soil-conservation districts have now been organized and the number is increasing almost daily. Essentially these soil-conservation districts are farmer cooperatives for soil and water conservation and good land use in general. To-day they cover approximately 190 million acres in 34 States. With 224 of these districts, comprising over 125 million acres in 28 States, the Department of Agriculture, the Soil Conservation Service, and the Extension Service are cooperating.

In all these districts you will find a sincere and vigorous spirit of community enterprise. You will find it in Georgia and in Utah; in Wisconsin and in New Mexico. It is for this reason, above all others, that I have faith in the soil-conservation district as a means of attaining our local, State, and national conservation objectives. I have seen enough to convince me that we have in the local soil-conservation district the most promising mechanism that has ever been proposed for introducing soil and water conservation measures swiftly and permanently across the billion acres of land in this country now needing treatment.

Social and Economic Problems

We have need today for continued action from all available sources to assist in correcting or mitigating the economic and social forces which tend to impel or encourage physical abuse of the land. When farm income is decreased, for example, by a slump in the market price of farm products, it may easily lead the farmer to mine his soil in order to achieve by sheer volume of production the necessary income he feels he could not obtain under a diversified, conservation type of farming. In turn, such mining of the soil has hastened erosion, and at the same time contributed to the accumulation of crop surpluses. In this way, many farmers eventually come to grief—their magic wand that would solve a tough economic problem with a system of farming contrary to common sense and the uncompromising ways of nature and mathematics, becomes an obstacle upon which they stumble into a morass of both economic and physical insecurity.

Increasing farm tenancy is another cause of soil erosion and consequent human insecurity. It may be an indirect cause, but it is an effective force nevertheless. That tenants and share croppers often have little interest in the land or its future is a well-recognized fact. Their interests, because of their circumstances, are immediate. At the same time it should be noted that attempts to win a livelihood from eroded

farms often meet with failure, and the owners of eroded farms may be forced into tenancy.

Before there can ever be a complete solution of the physical problems of American agriculture, or of a large share of the economic difficulties, there will need to be a more thorough public understanding of the complex inter-relationship of the social and economic forces with the physical. There will need to be an understanding of how efforts to improve social conditions on farms often have definite economic and physical advantages; how economic improvements in agriculture tend to raise the standards of living and of health in the country and encourage farmers to maintain and improve their physical farm plant; and how improvements in the physical well-being of the American farm plant provides both a cushion and an insurance to the Nation against permanently damaging social and economic shocks.

Research and Surveys Needed

There is need for continued and more comprehensive research in the field of soil conservation, particularly in the social and economic aspects, and in other phases of land-use adjustment. Our knowledge of the physical measures necessary and effective in controlling erosion has outstripped our knowledge in the related fields. Social and economic information would be invaluable, not only in making a more nearly complete appraisal of the work already accomplished, but as a basis on which future activities may proceed more swiftly and surely to desired objectives.

There is urgent need for a survey—the actual physical mapping—of the land resources of the country to determine accurately, and as soon as possible, their capabilities and limitations in use. Only with this information will it be possible to provide a physically, economically, and socially safe and sound basis for the orderly expansion, contraction, or rearrangement of the Nation's producing acres. Such a survey is already under way, but it should be speeded up and more people should clearly understand its objectives.

Now I come to what I consider the core of all my remarks this morning. I have tried to give you the reasons why I consider soil conservation an urgent and extremely essential national objective. I have tried to outline for you what I consider the outstanding needs in the field of soil conservation; needs that must be met if the conservation of our human and natural resources is to be accomplished effectively.

A Challenge to Educators

All this has been preamble to the pressing need for progressive education in the field of soil conservation and wise land use. From coast to coast, from border to border, people must begin to think, as a matter

of course, in terms of conservation of soil and water and of good land use. This is true not only of rural, but of urban people. It is true not only of adults, but of children. The close relationship of agriculture and sound land use to industry and urban life is not yet widely recognized. It is altogether possible and highly desirable that a better understanding of this relationship be established.

More and more the people of the country need to know that proper use of soil and water is essential not only to the welfare of our agricultural plant, but to the permanence of our urban life, to our forests, wildlife, hydroelectric power, irrigation, municipal water supplies, flood control, and virtually every other aspect of our civilization. It is essential, in short, to national security.

If present accomplishments are to be permanently effective, the forces of education must rally to the militant support of soil and water conservation. In the schools of the Nation, in the public forum, and in the literature of our times, conservation must become a byword. There is much to be gained by frequent, accurate discussions of the conservation problem, not only in public meetings but by way of the radio and in the newspapers, magazines, and journals of the country.

I am convinced in my own mind, and experience seems to bear out the conclusion, that consistent, relentless exposure of facts—accurate and complete—will in the end bring results. There is an old proverb to the effect that "The truth will out," but sometimes the truth is a long time appearing in recognizable clothes. Those of us who are interested in the future of this Nation, and in the development and spread of soil conservation, will help immeasurably if we instill the spirit of conservation into the language and thinking of the country at every opportunity. No group is in a better position to take the initiative in this direction than you who are entrusted with the responsibility for American education.

The National Interest

Although it may often be overlooked or ignored, agriculture is the foundation of every great nation. The capacity to produce the necessary foods and fibers for its citizens is a successful nation's first requisite. Or, lacking the actual farm plant to produce these foods and fibers, it must have ready access through trade channels to an adequate source of these materials.

Regardless of how the present wars in Europe and Asia end, or even if they continue for very long, the need for food and fiber must grow increasingly greater. Hungry mouths must be fed. Bodies must be clothed, and there must be shelter. Populations moved from their normal work and environment to man the machinery of war cannot be forgotten.

The alternative is degradation, disease, famine, and the obliteration of human values and human beings.

How is this to be done? In the final analysis, the answer must come from the soil. It has always come from the soil. It may come from the soil of Europe, or of Asia. It may come from the soil of Africa, or of South America. It may come from the soil of the United States.

Whatever the eventuality, it is no more than good, sound business sense—to say nothing of practical humanitarianism—to safeguard and defend our soil resources to the best of our capacity. Whether we need the products of our soil resources for our own immediate purposes alone, whether we need them to help the people of other nations who may be in dire need, or whether we think only of the long-time welfare of the United States as a Nation, there is no valid argument that can be brought to bear, in my opinion, which will show cause why our soil resources should be tampered with, or impaired in any way by senseless exploitation.

Defending Our Land

Defense of our soil resource is a vital and integral part of American national defense. We now know enough about agriculture, and about our physical plant, to proceed with reasonable certainty toward an expansion or contraction of production without destroying our agricultural future in the process. To do this, however, requires the sympathetic and concerted support of the individuals and organized groups of the Nation. Without this support, and without a demand from the people for sanity in the treatment of our basic resources, we can plunge willy-nilly into a downward spiral of waste and ruin from which we may never entirely recover. On the other hand, we can proceed with equal swiftness to accomplish our objectives, and use some old-fashioned common sense while doing it.

Defense of the soil is also a prime essential in the ultimate solution of a great many of our human problems. Directly or indirectly, every man, woman, and child in the country depends on the soil for existence and well-being. It is the original source of livelihood. Even today, men still turn to the soil; they turn to it for sustenance, for recovery, for retreat, and to build new hope and ambition.

The limit of our land to support population has never been fully explored. Certain it is that we have not yet reached anything like the saturation point on this continent. How many families, now unemployed, could make their own way on a decent plot of ground? How many city families, reluctantly forced to accept relief today, would be self-sustaining or partly self-sustaining citizens tomorrow if they could get on a piece of land that would provide the primary necessities of life, or part of such necessities? How many of our farm families, in difficult

financial circumstances today, would be better off tomorrow under an altered agriculture that placed subsistence above market cash, and substituted scientific methods for habit in the use of land?

(The goals toward which we as a Nation are working are opportunity and security—a better way of life for all our citizens and all their children—through wise use of human and natural resources. Back of all human security must be the security of our physical resources, because both human opportunity and security, in the final analysis, are built on the permanent productivity of the land.)

